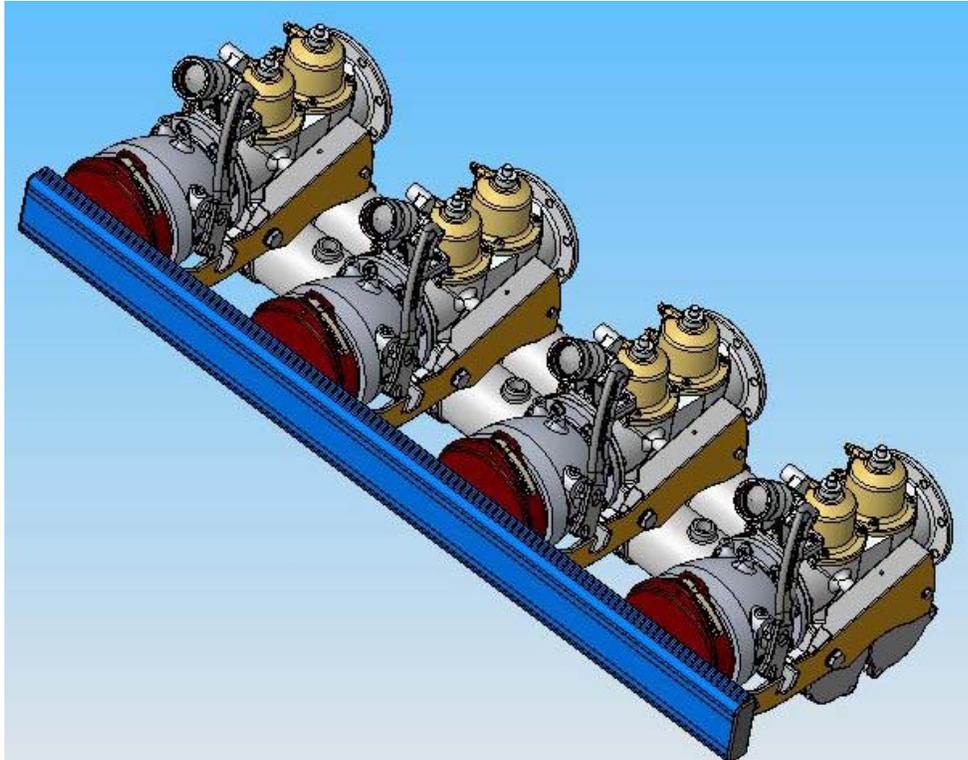


PETROLEUM MANIFOLD for TANK TRUCKS



Installation Instruction

CIVACONTM

A Unit of Knappco, Inc.
4304 Mattox Road Kansas City, MO 64150
Phone: 816-741-6600 Fax: 816-741-1061

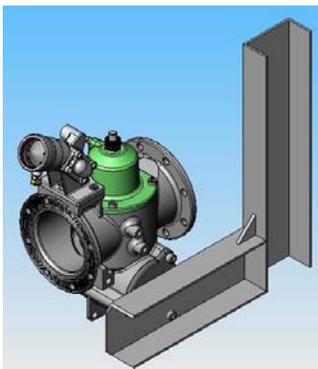
Suggested Mounting Arrangements

The Civacon manifold must be supported by dedicated structural supports. The supporting brackets may be bolted to the frame or welded to the tank, as shown below.

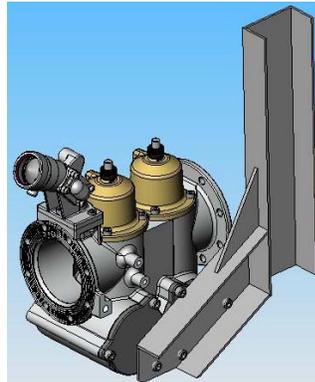
CAUTION: The manifold cannot be supported by product piping alone.

CAUTION: Mounting configurations are provided as suggestions only. Securing the manifold to the truck is the sole responsibility of the installer. Civacon assumes no responsibility for the attachment of the manifold.

Suggested Installation Configurations



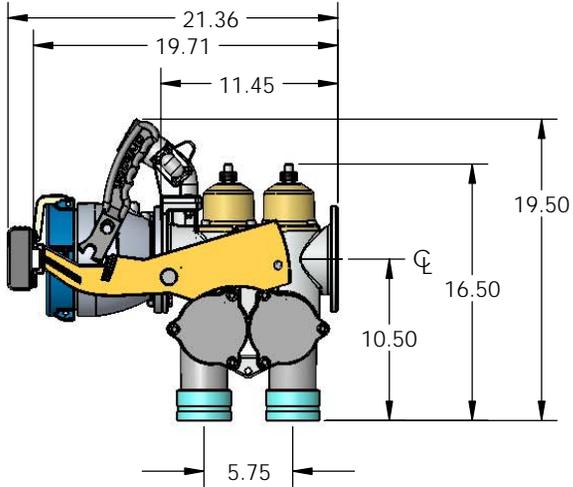
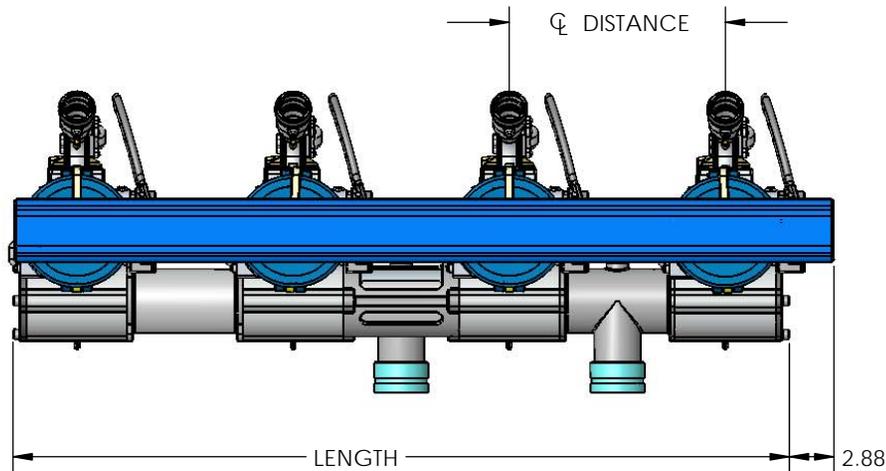
Mounting to tank



Mounting to truck frame

- Mounting illustrated uses 4 x .150 aluminum channel.
- At least $\frac{3}{4}$ " (19mm) of thread engagement is required in the manifold body. Six M10-1.5 x 35 long, Class 8.8 zinc-plated steel socket-head cap screws (Civacon p/n 10576M) are supplied for this purpose. These longer screws will replace the standard M10-1.5 x 30 long screws that are used to fasten the end caps at the factory.
- If the supporting material is thicker than $\frac{3}{16}$ ", then longer M10-1.5 Class 8.8 screws must be used.

REVISION			
REV:	DESCRIPTION:	BY:	DATE:
1	DRAWING RELEASE	MH	8/29/05



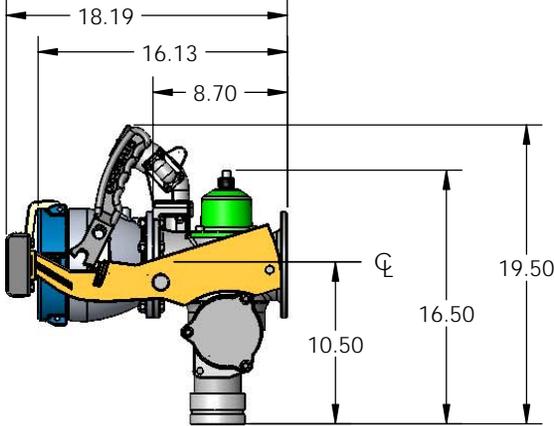
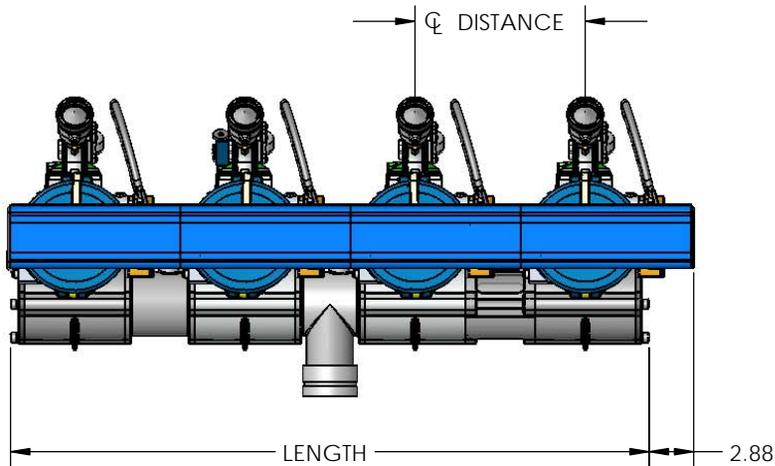
	# Compartments	2	3	4	5	6	7
Length, (in.)	11" Centers	19.5	30.5	41.5	52.5	63.5	74.5
Length, (in.)	14" Centers	22.5	36.5	50.5	64.5	78.5	92.5
Weight (lbs.)	11" Centers	68	102	136	170	204	238
Weight (lbs.)	14" Centers	70	105	140	175	210	245

NOTES:

- All weights and dimensions are for reference only.

THIS DRAWING IS THE EXCLUSIVE PROPERTY OF KNAPPCO INC. IT IS SUBMITTED ON THE CONDITION THAT THE DESIGNS CONTAINED THEREIN BE HELD CONFIDENTIAL, AND ARE SUBJECT TO RETURN ON DEMAND.	MATERIAL:	 KNAPPCO CORPORATION 4304 MATTOX ROAD KANSAS CITY, MISSOURI 64150 PHONE: (816) 741-6600 FAX: (816) 741-1061			
	TOLERANCES UNLESS OTHERWISE SPECIFIED				
	SURFACE FINISH 63 μIN.	TITLE:	DUAL MANIFOLD ASSEMBLY		
	FRACTIONAL: ± 1/16	DRAWN BY:			
DECIMAL: .0 ± .030 .00 ± .010 .000 ± .005	M. HOLT	8/26/05	NA	CF24- XX- XXX- XXX	1/1
ANGLE: ± 1°					

REVISION			
REV:	DESCRIPTION:	BY:	DATE:
1	DRAWING RELEASE	MH	8/29/05



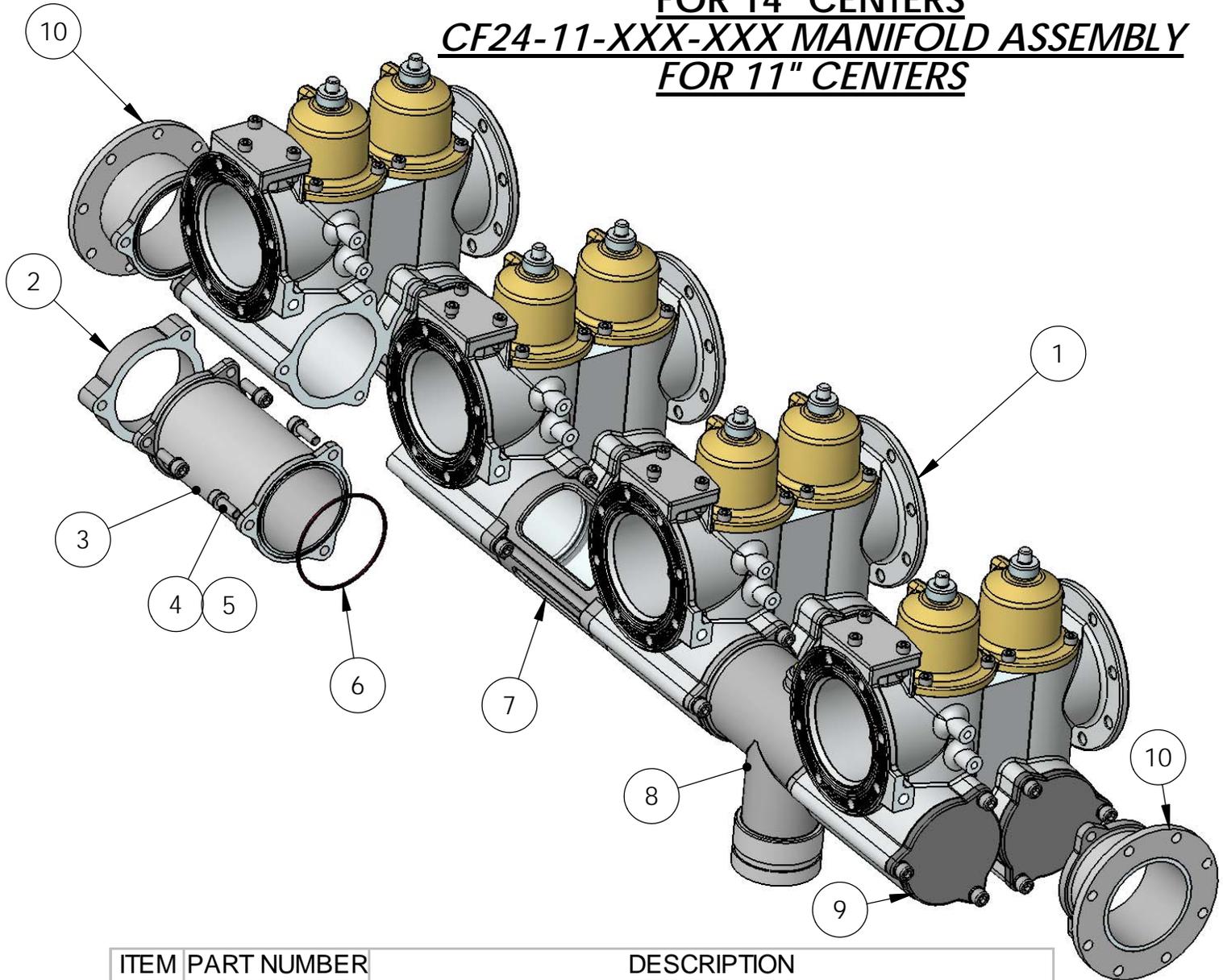
	# Compartments	2	3	4	5	6	7
Length, (in.)	11" Centers	19.5	30.5	41.5	52.5	63.5	74.5
Length, (in.)	14" Centers	22.5	36.5	50.5	64.5	78.5	92.5
Weight (lbs.)	11" Centers	42	64	85	106	128	149
Weight (lbs.)	14" Centers	43	65	87	109	131	153

NOTES:

1. All weights and dimensions are for reference only.

THIS DRAWING IS THE EXCLUSIVE PROPERTY OF KNAPPCO INC. IT IS SUBMITTED ON THE CONDITION THAT THE DESIGNS CONTAINED THEREIN BE HELD CONFIDENTIAL, AND ARE SUBJECT TO RETURN ON DEMAND.	MATERIAL:	 KNAPPCO CORPORATION 4304 MATTOX ROAD KANSAS CITY, MISSOURI 64150 PHONE: (816) 741-6600 FAX: (816) 741-1061				
	TOLERANCES UNLESS OTHERWISE SPECIFIED					
	SURFACE FINISH 63 µIN.	TITLE:	SINGLE MANIFOLD ASSEMBLY			
	FRACTIONAL: ± 1/16	DRAWN BY:				
DECIMAL: .0 ± .030 .00 ± .010 .000 ± .005	DATE:	8/26/05	SCALE:	NA	P/N:	CF14- XX- XXX- XXX
ANGLE: ± 1°	SHT#:	1/1				

CF24-14-XXX-XXX MANIFOLD ASSEMBLY
FOR 14" CENTERS
CF24-11-XXX-XXX MANIFOLD ASSEMBLY
FOR 11" CENTERS



ITEM	PART NUMBER	DESCRIPTION
1	10541M	DUAL MANIFOLD VAVLE ASSEMBLY
2	10982M	SPACER, 1" WIDE FOR 12" CENTERS
3	10562M	COLLECTOR PIPE FOR 14" CENTERS
3	10561M	COLLECTOR PIPE FOR 11" CENTERS
4	10521M	SCREW, M10 X 30 ZINC PLATED (TYPICAL)
5	10740M	WASHER, M10 ZINC PLATED (TYPICAL)
6	10494M	O-RING, 102 X 3 NITRILE (TYPICAL)
7	10644M	COLLECTOR SIGHT GLASS FOR 14" CENTERS
7	10698M	COLLECTOR SIGHT GLASS FOR 11" CENTERS
8	10798M	COLLECTOR TEE FOR 14" CENTERS, 3" VICTAULIC
8	10697M	COLLECTOR TEE FOR 11" CENTERS, 3" VICTAULIC
9	10558M	END CAP, COLLECTOR
10	10983M	OUTLET ADAPTER, 4" TTMA (OPTIONAL)

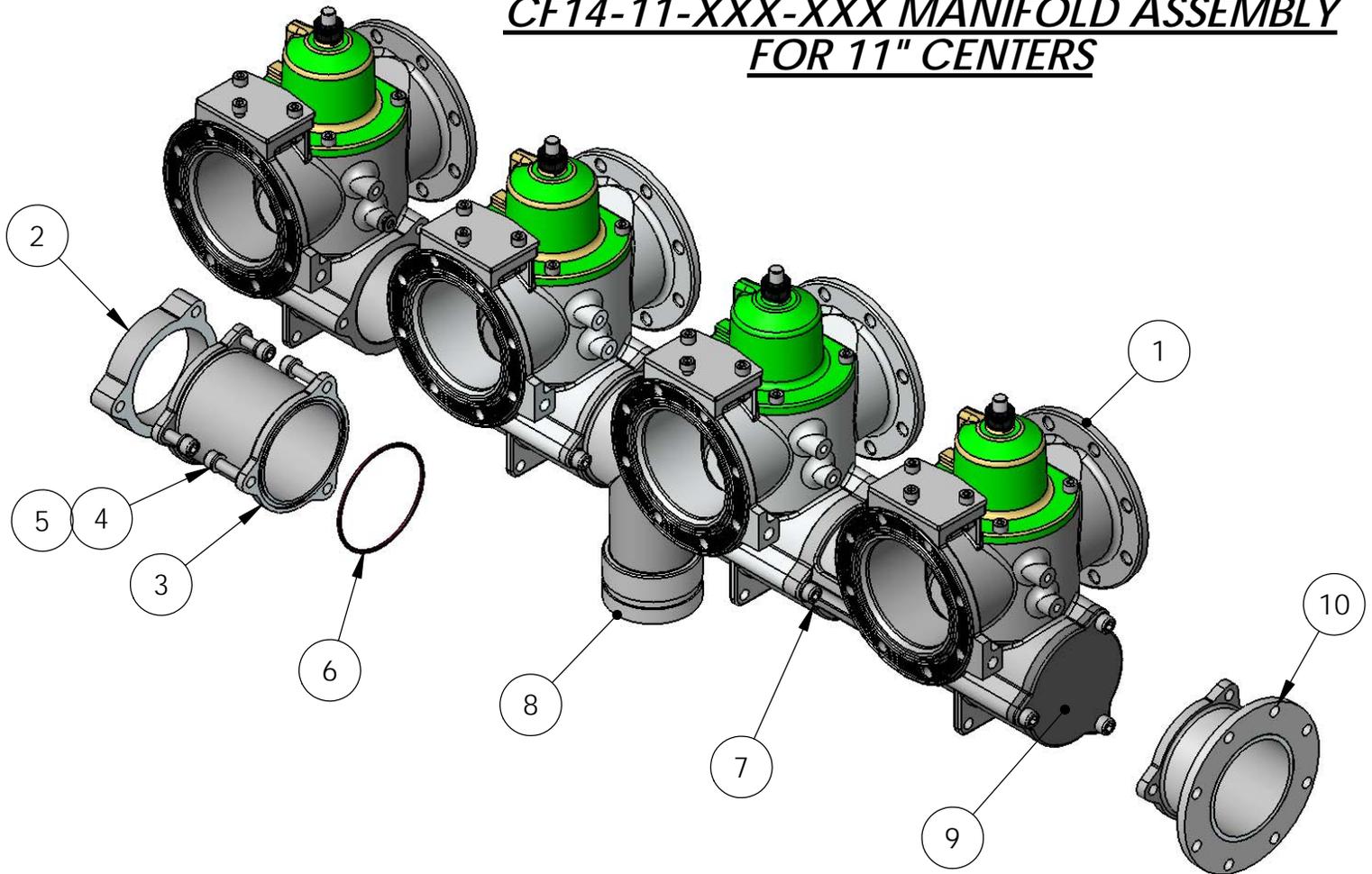
4304 Mattox Road
 Kansas City, MO 64150



Phone: 888-526-5657
 Fax: 888-634-1433

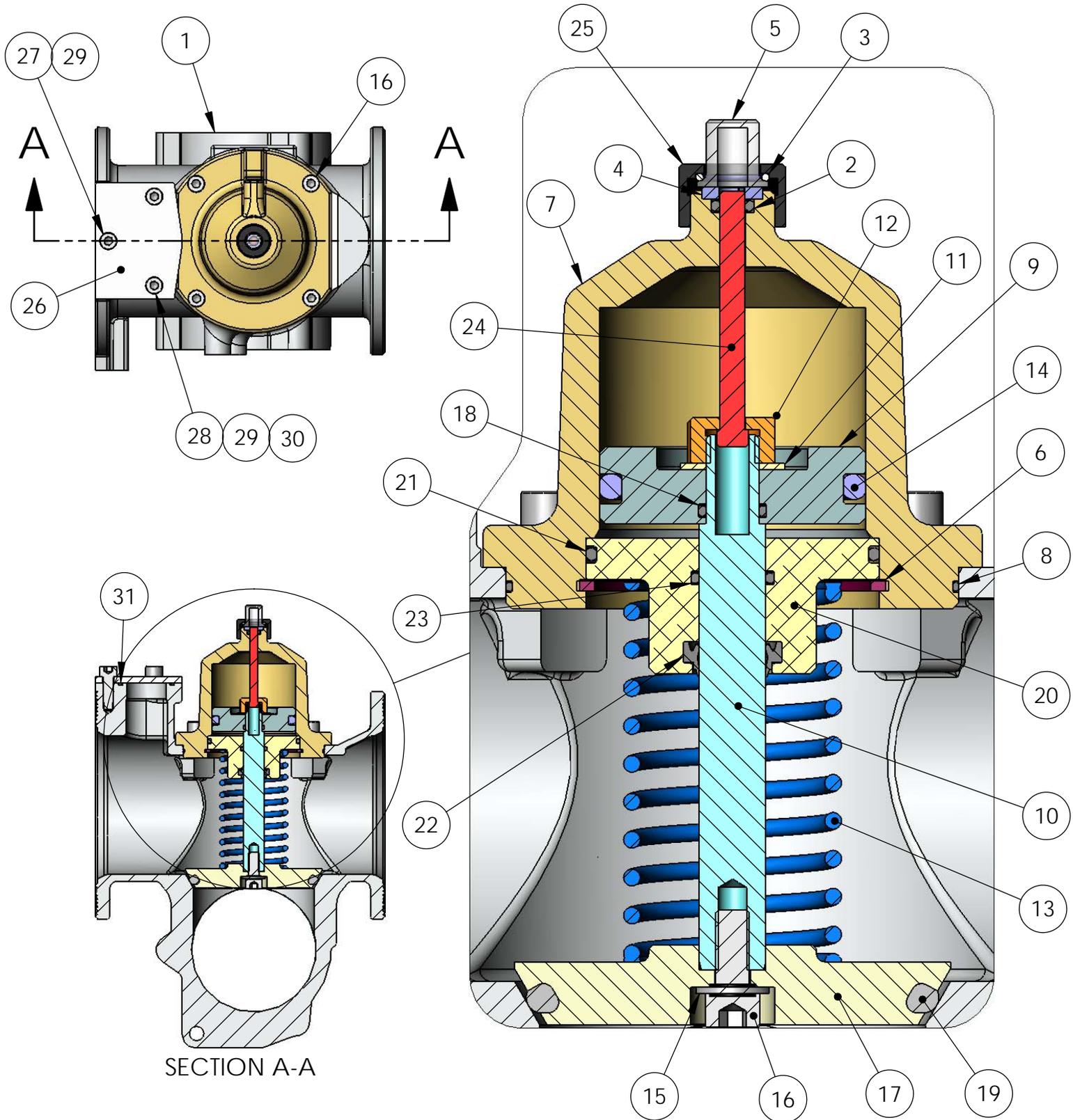
CF14-14-XXX-XXX MANIFOLD ASSEMBLY FOR 14" CENTERS

CF14-11-XXX-XXX MANIFOLD ASSEMBLY FOR 11" CENTERS



ITEM	PART NUMBER	DESCRIPTION
1	10540M	SINGLE MANIFOLD VALVE ASSEMBLY
2	10982M	SPACER, 1" WIDE FOR 12" CENTERS
3	10562M	COLLECTOR PIPE FOR 14" CENTERS
3	10561M	COLLECTOR PIPE FOR 11" CENTERS
4	10773M	SCREW, M10 X 30 ZINC PLATED (TYPICAL)
5	10237M	WASHER, M10 ZINC PLATED (TYPICAL)
6	10494M	O-RING, 102 X 3 NITRILE (TYPICAL)
7	10644M	COLLECTOR SIGHT GLASS FOR 14" CENTERS
7	10698M	COLLECTOR SIGHT GLASS FOR 11" CENTERS
8	10798M	COLLECTOR TEE FOR 14" CENTERS, 3" VICTAULIC
8	10697M	COLLECTOR TEE FOR 11" CENTERS, 3" VICTAULIC
9	10558M	END CAP, COLLECTOR
10	10983M	OUTLET ADAPTER, 4" TTMA (OPTIONAL)

10540M SINGLE MANIFOLD VALVE ASSEMBLY



4304 Mattox Road
Kansas City, MO 64150

CIVACONTM

Phone: 888-526-5657
Fax: 888-634-1433

REV 1 1SEP05

10540M SINGLE MANIFOLD VALVE ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10387M	BODY, SINGLE MANIFOLD, MACHINED	1
2	10241M	O-RING, 6 X 2.5	1
3	10776M	O-RING, -015	1
4	10209M	INDICATOR WASHER	1
5	10773M	SIGHT GLASS	1
6	10237M	RETAINING RING, 2-3/4" ZINC PLATED	1
7	10390M	CYLINDER, SINGLE MANIFOLD, MACHINED	1
8	10242M	O-RING, 103 X 2 VITON	1
9	10203M	PISTON	1
10	10204M	MAIN SHAFT	1
11	10206M	PISTON WASHER	1
12	10205M	PISTON SHAFT NUT	1
13	10233M	SPRING, COMPRESSION	1
14	10476M	O-RING, 52 X 6	1
15	10232M	SEAL WASHER, 5/16"	1
16	10235M	SCREW, M8 X 20	5
17	10210M	POPPET	1
18	10240M	O-RING, 12.5 X 2.5	1
19	10211M	O-RING, 79 X 7 VITON	1
20	10202M	CYLINDER END PLATE	1
21	10243M	O-RING 63 X 3	1
22	10238M	WIPER SEAL, .625 ID, VITON GF	1
23	10520M	O-RING, 15.9 X 2.4	1
24	10207M	INDICATOR ROD	1
25	10772M	CARRIER, SIGHT GLASS	1
26	10537M	BLANKING PLATE, RETURN SPOUT	1
27	10276M	SCREW, M8 X 25	1
28	10277M	SCREW, M8 X 35	2
29	10263M	WASHER, M8 FLAT PLATED	3
30	10262M	NUT, M8 HEX PLATED	2
31	10269M	O-RING, 39 X 2.5	1

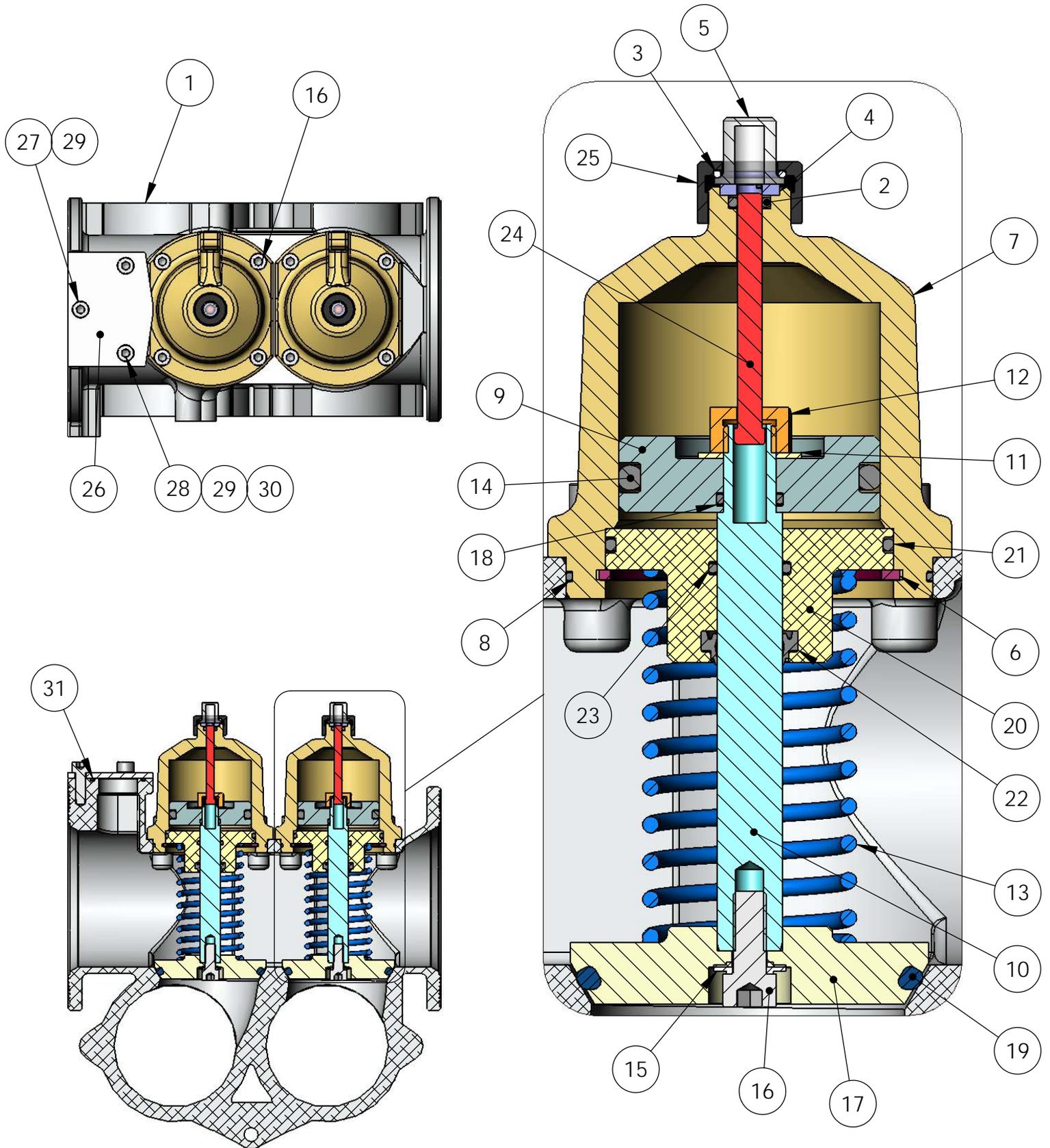
4304 Mattox Road
Kansas City, MO 64150



REV 1 1SEP05

Phone: 888-526-5657
Fax: 888-634-1433

10541M DUAL MANIFOLD VALVE ASSEMBLY



4304 Mattox Road
Kansas City, MO 64150

CIVACONTM

Phone: 888-526-5657
Fax: 888-634-1433

REV 1 1SEP05

10541M DUAL MANIFOLD VALVE ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10386M	BODY, DOUBLE MANIFOLD, MACHINED	1
2	10241M	O-RING, 6 X 2.5	2
3	10776M	O-RING, -015	2
4	10209M	INDICATOR WASHER	2
5	10773M	SIGHT GLASS	2
6	10237M	RETAINING RING, 2-3/4" ZINC PLATED	2
7	10391M	CYLINDER, DUAL MANIFOLD, MACHINED	2
8	10267M	O-RING, 85 X 2 VITON	2
9	10203M	PISTON	2
10	10204M	MAIN SHAFT	2
11	10206M	PISTON WASHER	2
12	10205M	PISTON SHAFT NUT	2
13	10233M	SPRING, COMPRESSION	2
14	10476M	O-RING, 52 X 6	2
15	10232M	SEAL WASHER, 5/16"	2
16	10235M	SCREW, M8 X 20	10
17	10265M	POPPET	2
18	10240M	O-RING, 12.5 X 2.5	2
19	10783M	O-RING, -335 VITON	2
20	10202M	CYLINDER END PLATE	2
21	10243M	O-RING 63 X 3	2
22	10238M	WIPER SEAL, .625 ID, VITON GF	2
23	10520M	O-RING, 15.9 X 2.4	2
24	10207M	INDICATOR ROD	2
25	10772M	CARRIER, SIGHT GLASS	2
26	10537M	BLANKING PLATE, RETURN SPOUT	2
27	10276M	SCREW, M8 X 25	1
28	10277M	SCREW, M8 X 35	2
29	10263M	WASHER, M8 FLAT PLATED	3
30	10262M	NUT, M8 HEX PLATED	2
31	10269M	O-RING, 39 X 2.5	1

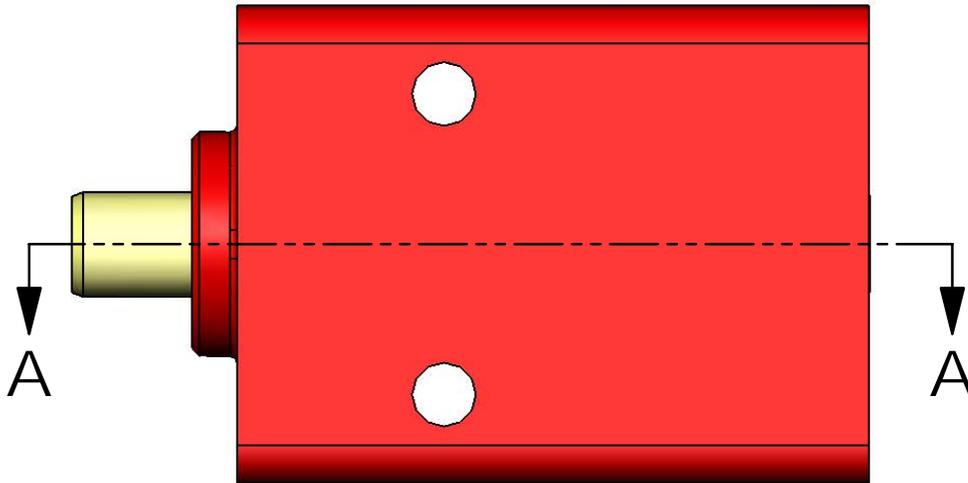
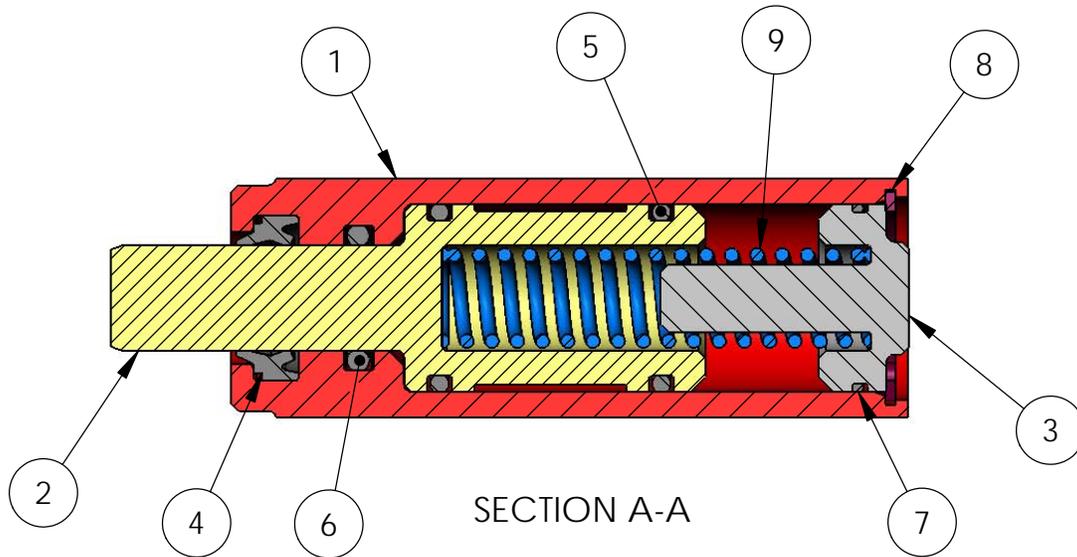
4304 Mattox Road
Kansas City, MO 64150



REV 1 1SEP05

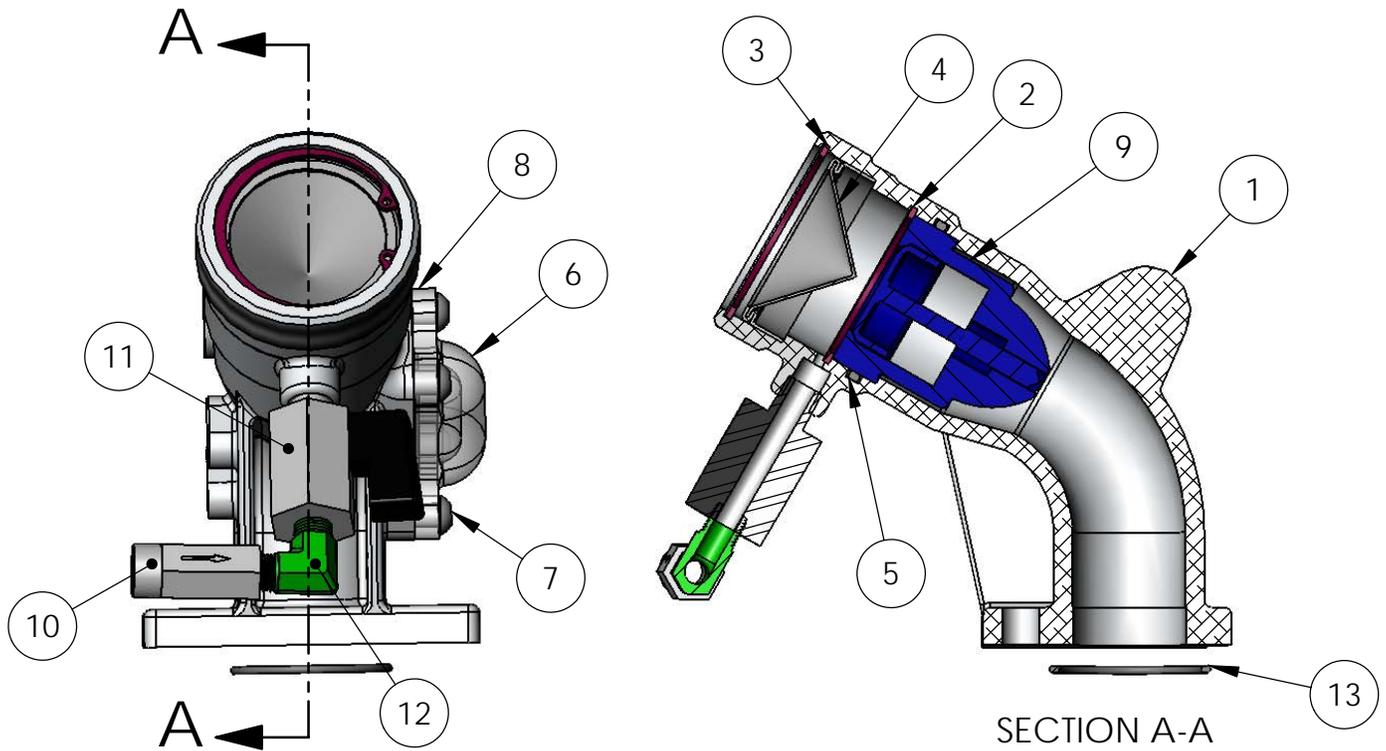
Phone: 888-526-5657
Fax: 888-634-1433

10544M GUARD BAR LOCKING VALVE ASSEMBLY



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10221M	BODY, ANODIZED ALUMINUM	1
2	10222M	PISTON	1
3	10223M	END CAP	1
4	10224M	WIPER SEAL, NITRILE	1
5	10225M	O-RING, 20 X 2.5, NITRILE	2
6	10226M	O-RING, 14 X 3, NITRILE	1
7	10227M	O-RING, 22 X 1.5 NITRILE	1
8	10228M	RETAINING RING, 1-1/16"	1
9	10229M	SPRING, COMPRESSION	1

10546M NPT RETURN SPOUT ASSEMBLY



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10539M	BODY, RETURN SPOUT NPT, MACH.	1
2	10249M	RETAINING RING, 1-3/4"	1
3	10250M	RETAINING RING, 2"	1
4	10251M	STRAINER, SS	1
5	10252M	O-RING, 44 X 3, NITRILE	1
6	C10316M	SIGHT GLASS	1
7	10512M	SCREW, M6 X 1 X 12	4
8	H51437M	O-RING, SIGHT GLASS, NITRILE	1
9	10733M	CHECK VALVE, RETURN SPOUT	1
10	10765M	CHECK VALVE, BLOW-DOWN	1
11	10766M	BALL VALVE, BLOW-DOWN	1
12	10767M	FITTING, BRASS ELBOW	1
13	10269M	O-RING, 39 X 2.5, NITRILE	1
-	10276M	SCREW, M8 X 1.25 X 25	1
-	10277M	SCREW, M8 X 1.25 X 35	2
-	10263M	WASHER, M8 FLAT	2
-	10262M	NUT, M8	2

4304 Mattox Road
Kansas City, MO 64150

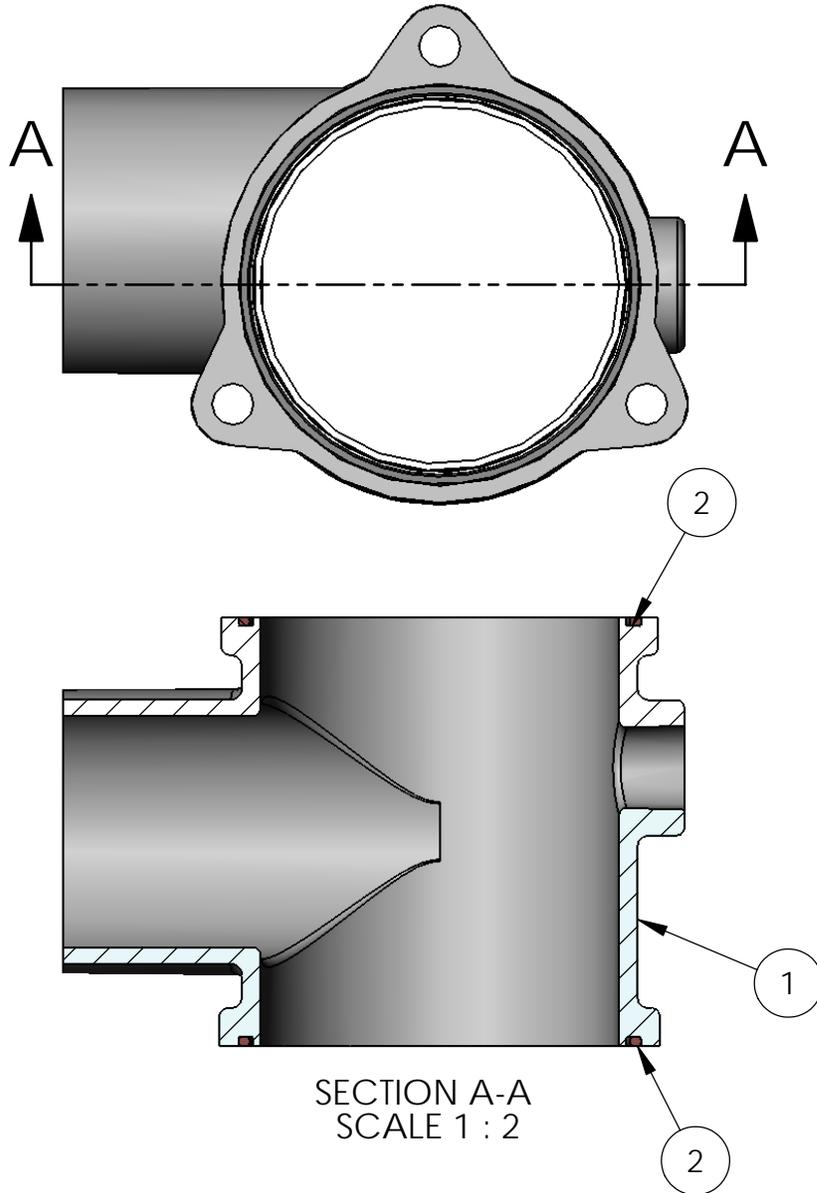
civaconTM

REV 1 29AUG05

Phone: 888-526-5657
Fax: 888-634-1433

**10557M COLLECTOR TEE ASSEMBLY
FOR 14" CENTERS**

**10556M COLLECTOR TEE ASSEMBLY
FOR 11" CENTERS**



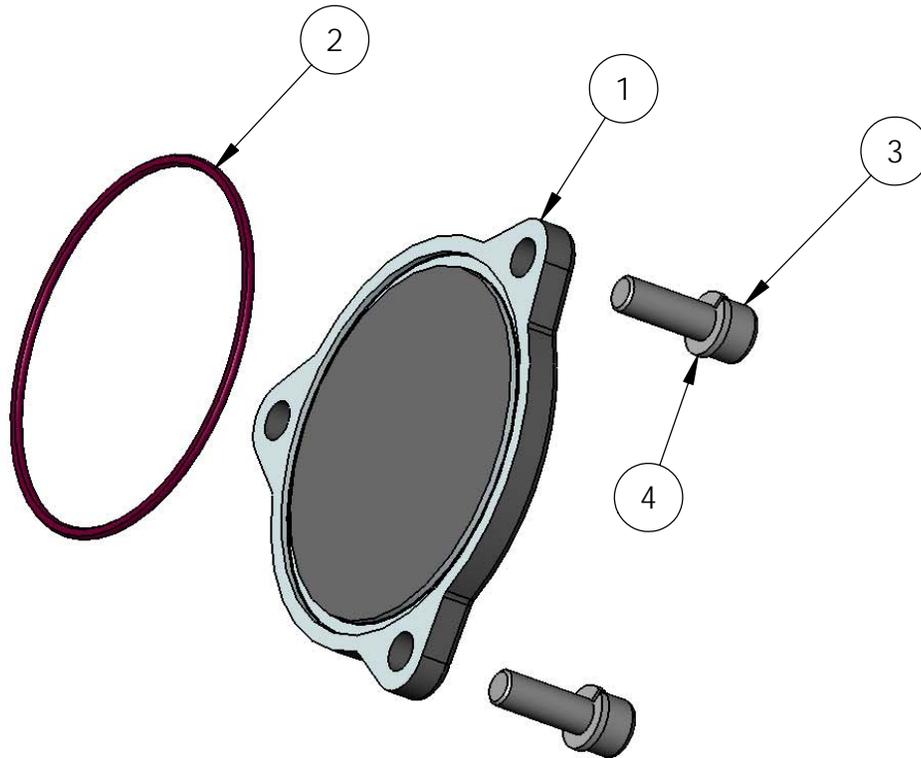
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10797M	COLLECTOR TEE FOR 14" CENTERS	1
1	10755M	COLLECTOR TEE FOR 11" CENTERS	1
2	10494M	O-RING, 102 X 3 VITON	2

4304 Mattox Road
Kansas City, MO 64150

CIVACONTM
REV 1 29AUG05

Phone: 888-526-5657
Fax: 888-634-1433

10558M END CAP ASSEMBLY



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10506M	END CAP, MANIFOLD COLLECTOR	1
2	10494M	O-RING, 102 X 3 NITRILE	1
3	10521M	SCREW, M10 X 1.5 X 30, ZINC PLATED	3
4	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	3

4304 Mattox Road
Kansas City, MO 64150

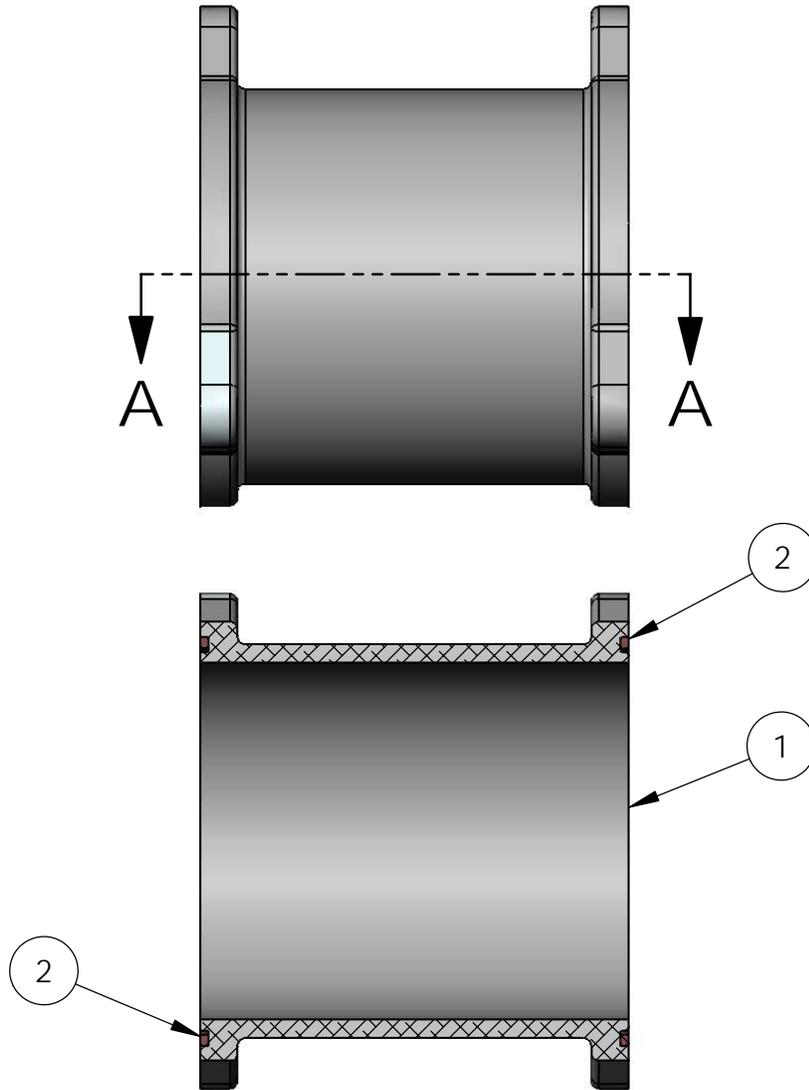
CIVACONTM

REV 1 29AUG05

Phone: 888-526-5657
Fax: 888-634-1433

**10562M COLLECTOR PIPE ASSEMBLY
FOR 14" CENTERS**

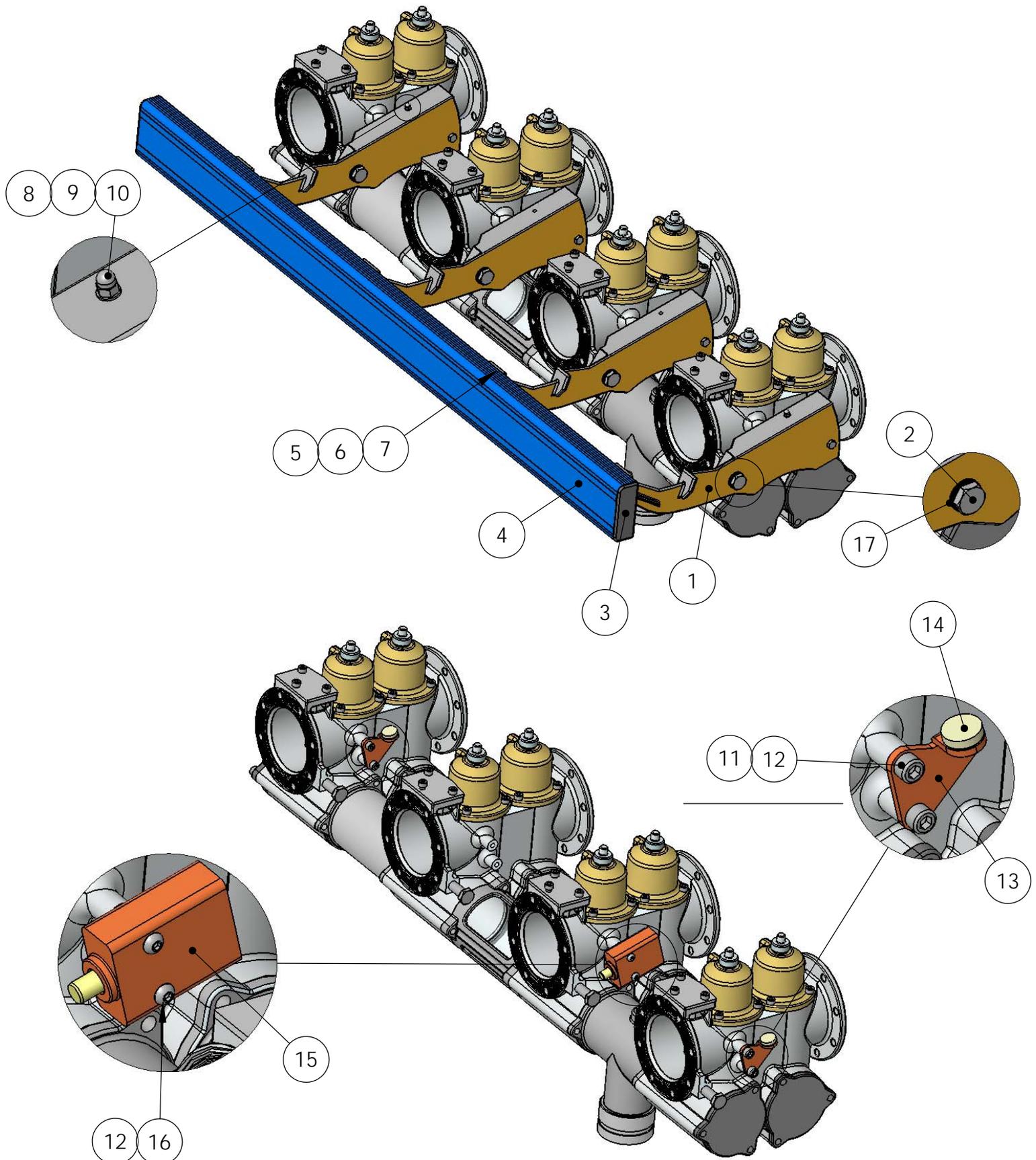
**10561M COLLECTOR PIPE ASSEMBLY
FOR 11" CENTERS**



SECTION A-A
SCALE 1 : 2

ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10571M	COLLECTOR PIPE FOR 14" CENTERS	1
1	10570M	COLLECTOR PIPE FOR 11" CENTERS	1
2	10494M	O-RING, 102 X 3 VITON	2
-	10576M	SCREW, M10 X 1. 5 X 35 LONG, ZINC PLATED	6
-	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	6

10641M API GUARD BAR ASSEMBLY



(GUARD BAR NOT SHOWN IN THIS VIEW)

4304 Mattox Road
Kansas City, MO 64150

CIVACONTM

REV 1 29AUG05

Phone: 888-526-5657
Fax: 888-634-1433

10641M API GUARD BAR ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION
1	10542M	ASSEMBLY, API GUARD BAR ARM
2	10213M	SHOULDER BOLT, GUARD BAR ARM
3	10745M	CAP, GUARD BAR ARM
4	10643M-LENGTH	GUARD BAR EXTRUSION
5	1228	SCREW, 1/4-20 X 1" ZINC PLATED
6	1691	WASHER, 1/4 FLAT ZINC PLATED
7	10807M	NUT, 1/4-20 NYLON LOCKING
8	10274M	NUT, M5 ACORN, PLATED
9	10255M	WASHER, M5 PLATED
10	10258M	MAGNET BUTTON, PLATED
11	10264M	SCREW, M8 X 40 ZINC PLATED
12	10263M	WASHER, M8 FLAT PLATED
13	10534M	MAGNET BRACKET
14	10270M	MAGNET
15	10544M	GUARD BAR LOCK
16	10280M	SCREW, M8 X 45 ZINC PLATED
17	10245M	BUSHING, GUARD BAR ARM

4304 Mattox Road
Kansas City, MO 64150

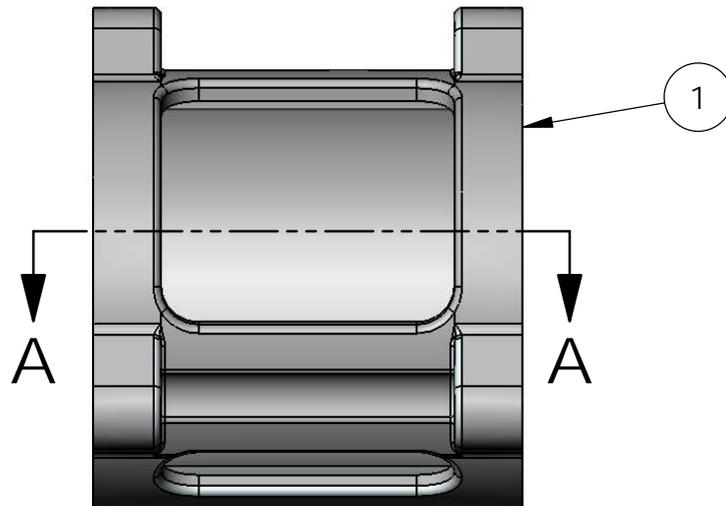
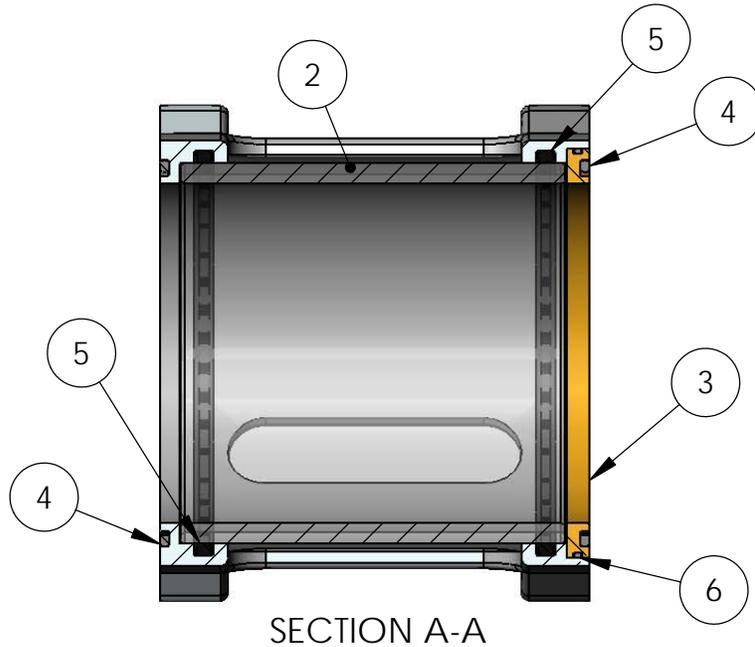


REV 1 29AUG05

Phone: 888-526-5657
Fax: 888-634-1433

10644M SIGHT GLASS ASSEMBLY FOR 14" CENTERS

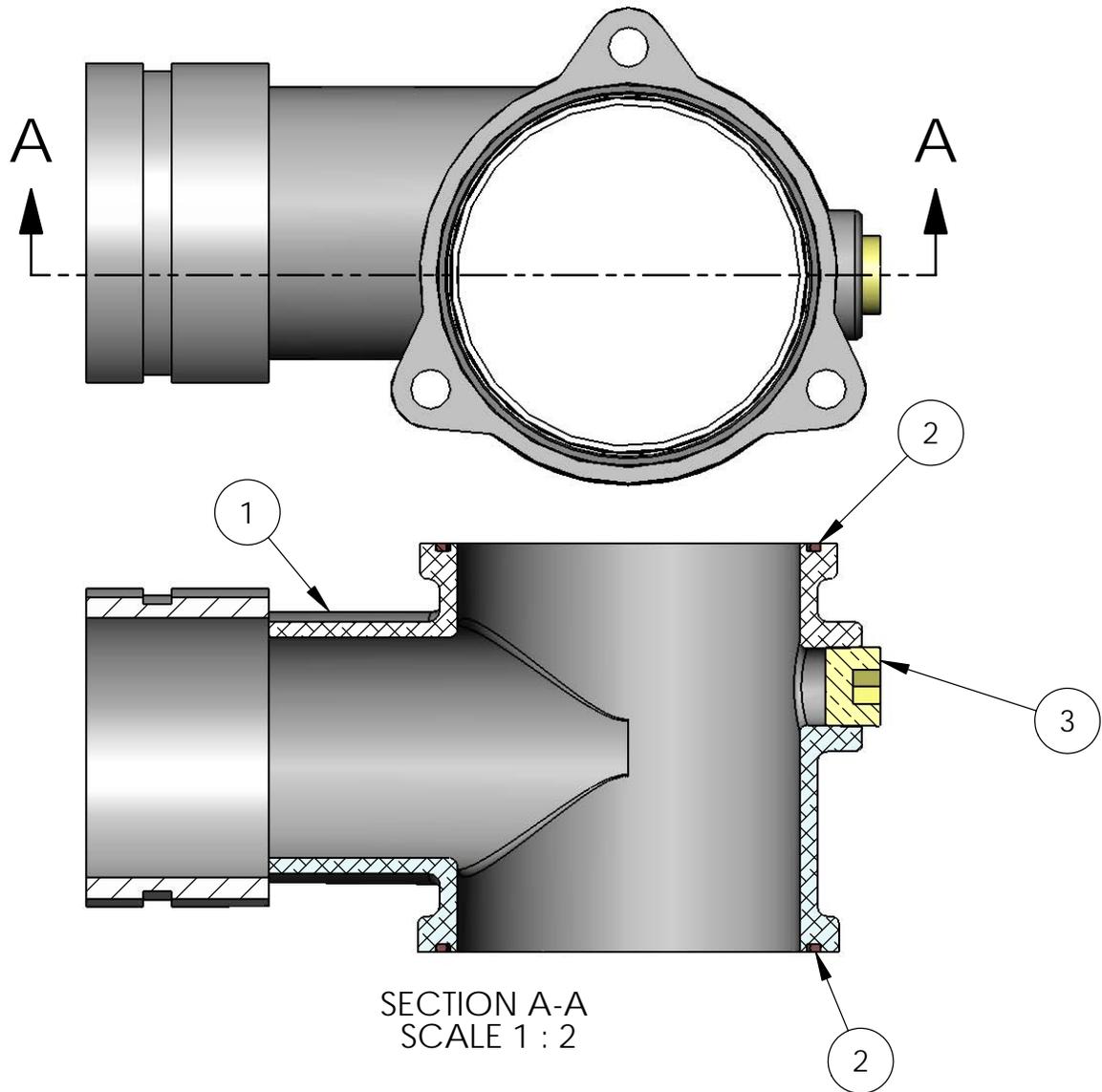
10698M SIGHT GLASS ASSEMBLY FOR 11" CENTERS



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10569M	COLLECTOR SIGHT GLASS HOUSING, 14" CENTERS	1
1	10568M	COLLECTOR SIGHT GLASS HOUSING, 11" CENTERS	1
2	10525M	SIGHT GLASS FOR 14" CENTERS	1
2	10524M	SIGHT GLASS, 11" CENTERS	1
3	10507M	ALUMINUM SEAL RING, COLLECTOR SIGHT GLASS	1
4	10494M	O-RING, 102 X 3 VITON, BODY TO MANIFOLD VALVE	2
5	10495M	O-RING, 104 X 4 VITON, GLASS SEALING	2
6	10496M	O-RING, -046 VITON SEAL RING	1
-	10576M	SCREW, M10 X 1. 5 X 35 LONG, ZINC PLATED	6
-	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	6

10798M COLLECTOR TEE ASSEMBLY
FOR 14" CENTERS with 3" VICTAULIC OUTLET

10697M COLLECTOR TEE ASSEMBLY
FOR 11" CENTERS with 3" VICTAULIC OUTLET



SECTION A-A
SCALE 1 : 2

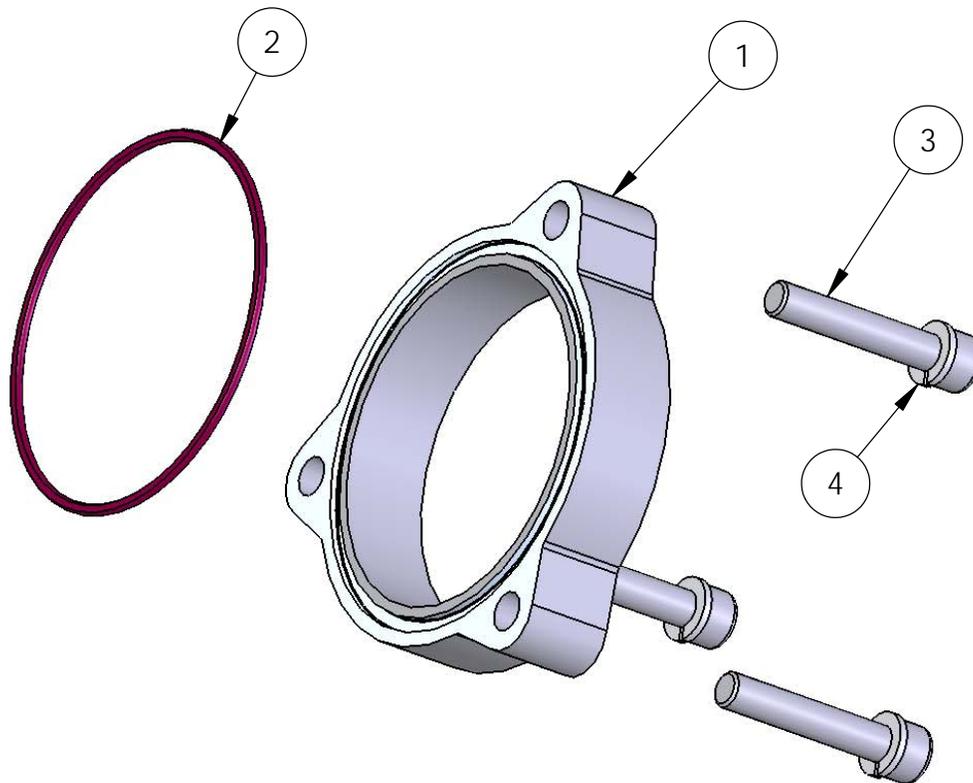
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10797M	COLLECTOR TEE FOR 14" CENTERS	1
1	10755M	COLLECTOR TEE FOR 11" CENTERS	1
2	10494M	O-RING, 102 X 3 VITON	2
3	9901	PLUG, 1/2 NPT BRASS	1
-	10576M	SCREW, M10 X 1. 5 X 35 LONG, ZINC PLATED	6
-	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	6

4304 Mattox Road
Kansas City, MO 64150

CIVACONTM
REV 1 29AUG05

Phone: 888-526-5657
Fax: 888-634-1433

10982M 1" COLLECTOR SPACER ASSEMBLY



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10751M	SPACER, 1" WIDE FOR COLLECTOR	1
2	10494M	O-RING, 102 X 3 NITRILE	1
3	10750M	SCREW, M10 X 1.5 X 55, ZINC PLATED	1
4	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	1

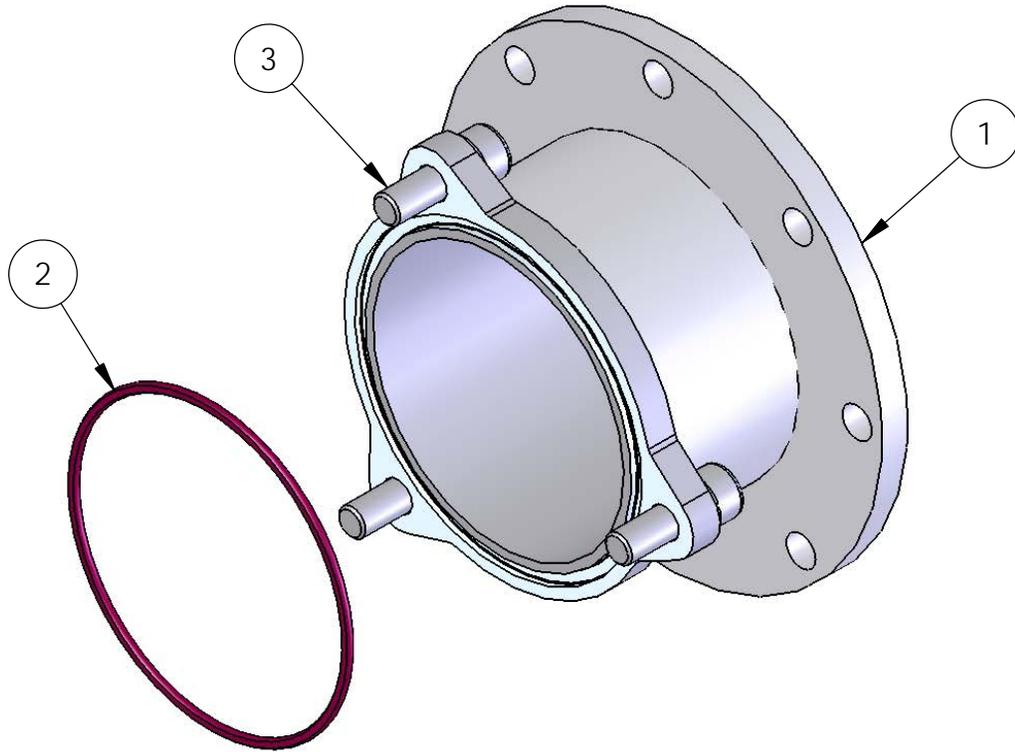
4304 Mattox Road
Kansas City, MO 64150

civaconTM

REV 1 29AUG05

Phone: 888-526-5657
Fax: 888-634-1433

10983M 4" TTMA ADAPTER ASSEMBLY



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10974M	4" TTMA FLANGE WELDMENT (2-3/4" LONG)	1
2	10494M	O-RING, 102 X 3 NITRILE	1
3	10521M	SCREW, M10 X 1.5 X 30, ZINC PLATED	3
4	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	3

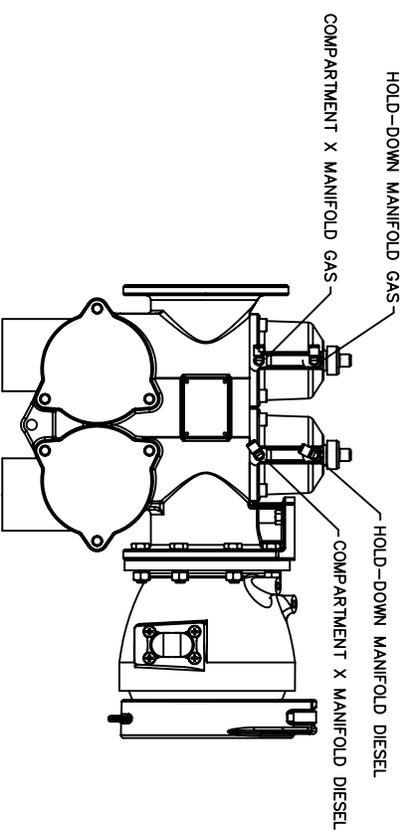
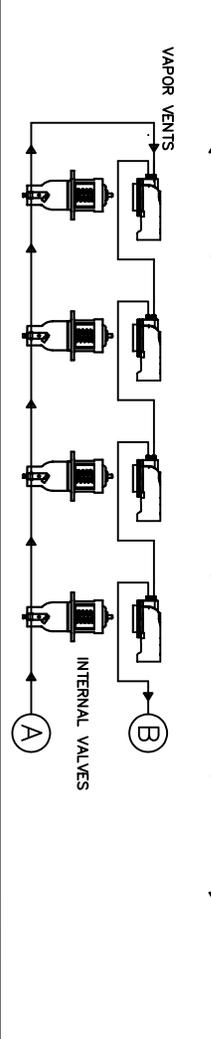
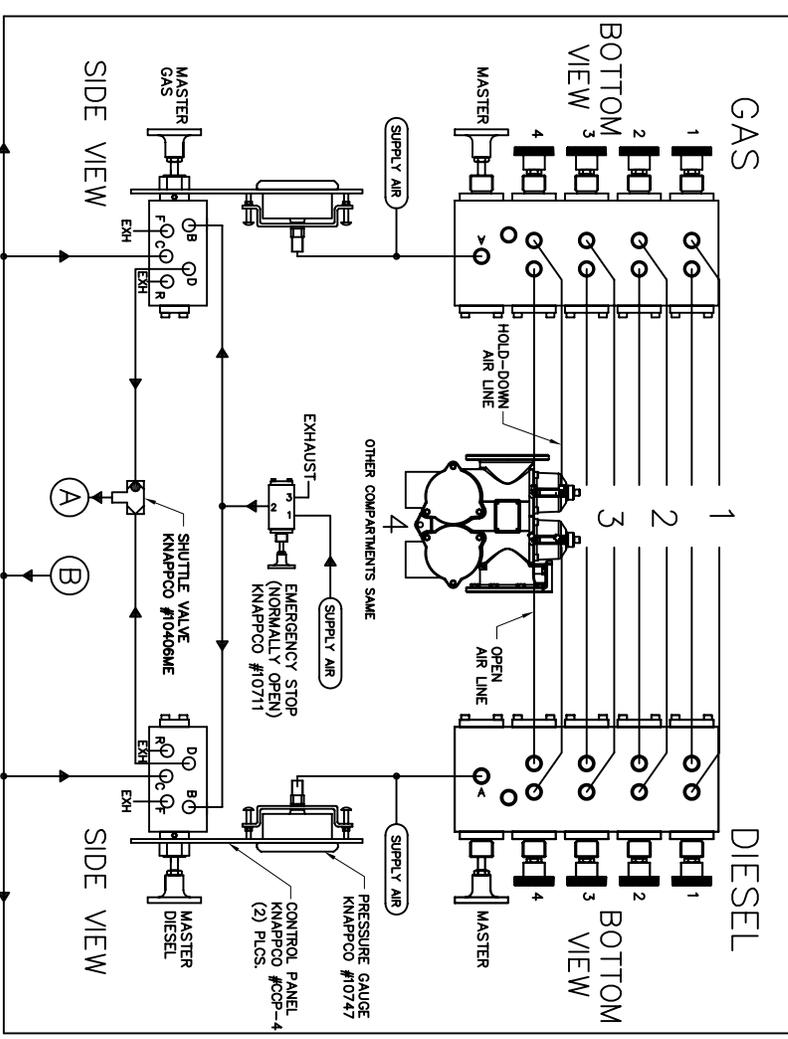
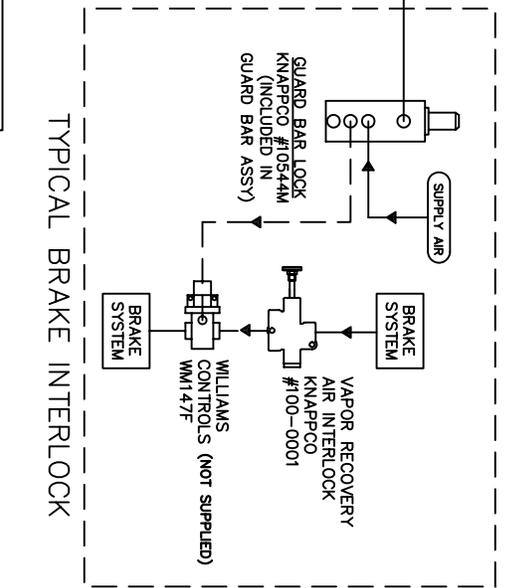
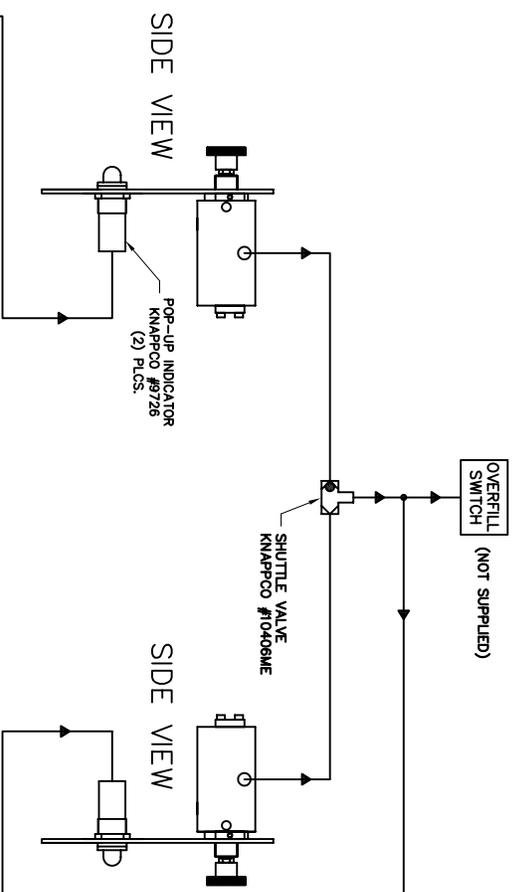
4304 Mattox Road
Kansas City, MO 64150

civaconTM

REV 1 29AUG05

Phone: 888-526-5657
Fax: 888-634-1433

REV.	DESCRIPTION:	BY:	DATE:
1	ENGINEERING REVISION	MH	5/25/05
2	REMOVED SHUTTLE VALVE AT PORTS "B"	MH	5/26/05
3	REVISED E-STOP PORTS	MH	6/21/05
4	ADDED OVERFILL SWITCH	MH	9/1/05



- OPERATION:**
- PULL EITHER MASTER TO OPEN ALL VAPOR VENTS AND INTERNAL VALVES. COMPARTMENT MANIFOLD VALVES ARE LOCKED.
 - PULL EITHER MASTER TO UNLOCK GAS MANIFOLD VALVES
 - PULL EITHER MASTER TO UNLOCK DIESEL MANIFOLD VALVES
 - OPERATOR MAY OPEN GAS & DIESEL VALVES AT THE SAME TIME
 - E-STOP SHUTS ALL VALVES
 - MOUNT SHUTTLE VALVES IN AN ACCESSIBLE LOCATION.

MATERIAL:		TOLERANCES UNLESS OTHERWISE SPECIFIED	
SURFACE FINISH: 63 μIN.		± 1/16	
FRACTIONAL: .00 ± .030		DECIMAL: .000 ± .010	
ANGLE: ± 1°			
KNAIPCO CORPORATION 4324 HATTOR ROAD KANSAS CITY, MISSOURI 64100 PHONE: (816) 741-0000 FAX: (816) 741-1001			
TITLE:	CIVA CONTROL MANIFOLD 2-CCP-4	DATE:	5/25/05
DRAWN BY:	M. HOLT	SCALE:	NA
P/N:	PT11654-12		



A DIVISION OF KNAPPCO CORPORATION
4304 Mattox Road, Riverside, MO 64150
Phone: 816-741-6600 Fax: 816-741-1061

“CIVACONTROL” OPERATION MANUAL

The purpose of this document is to explain how the CIVACONTROL® air control system operates and to communicate the capabilities of this system. Each air connection has been identified with descriptions below. A photograph of the air control manifold has been included as a reference, as well as a suggested plumbing schematic.

The air control manifold is designed with a master air valve that is used to control the individual compartment valves for the emergency (internal) loading valves. One of the safety features of this air control manifold is that the master can be closed (Knob pushed in) and will automatically close all the other compartment valves. Not only does this close off all (internal) loading valves, it pneumatically locks the loading valves in the closed position with air pressure. The system can be plumbed in such a manner to allow the same automatic shut off from a remote location at the front of the tank using an emergency stop valve.

This air control system has been designed to protect the tank during loading or unloading. The master valve, pull out, sends an automatic diagnostic signal to sequential vapor vents, or sequentially plumbed vapor vents, to open. The signal is then returned to air control manifold. At this point, an indicator can be plumbed into the system to physically show the signal has been returned to manifold. Compartment valves can't be opened until it has received the automatic diagnostic confirmation that the vapor recovery vents from each compartment have been opened.

This air control system has the ability to enable access to the API loading adaptors with the use of our guard bar lock. A protective bar is positioned over the ends of the API loading adaptors and cannot be rotated out of the way until an air valve that is located in a locked cabinet is actuated. This allows the guard bar to be lifted to load or unload. The guard bar lock is released after the master valve is pulled open and the have been opened. Below is the basic identification of some of the key ports and how to connect this system.

WARNING:

Never lubricate or introduce non-recommended oils or solvents (WD40® or alcohol) into the CIVACONTROL® air control system. Please lubricate the system only with the recommended oils that are made for air controls on vehicles. The non-recommended oils or solvents can attack seals and cause damage to the valves resulting in excessive wear, leaking valves and even premature failures.

A

This air connection is the main or constant air supply to the master valve of the CIVACONTROL® air control system.

B

Air supply from the emergency shut off valve that would be located at the front of the trailer. In an emergency situation, the emergency shut off valve would be actuated and would close the master valve on the manifold. This would in turn close and pneumatically lock the other valves on the manifold that are controlling the emergency (internal) loading valves.

C

This air connection is the return from the sequential vapor recovery vents and also functions as the primary air supply for the compartment valves.

D

This connection is for the air supply to the sequential vapor recover vents. Air is supplied to the first sequential vapor recovery vent which in turn will open and send air to the next vapor recovery vent. This continues until all vapor recovery vents are open then the air is allowed to return to air connection gallery C.

E

When the first valve on the manifold is actuated this air connection allows air to travel to the emergency (internal) loading valve in the number (1) compartment, opening this loading valve.

F

This is an exhaust port for the pilot reset gallery.

G

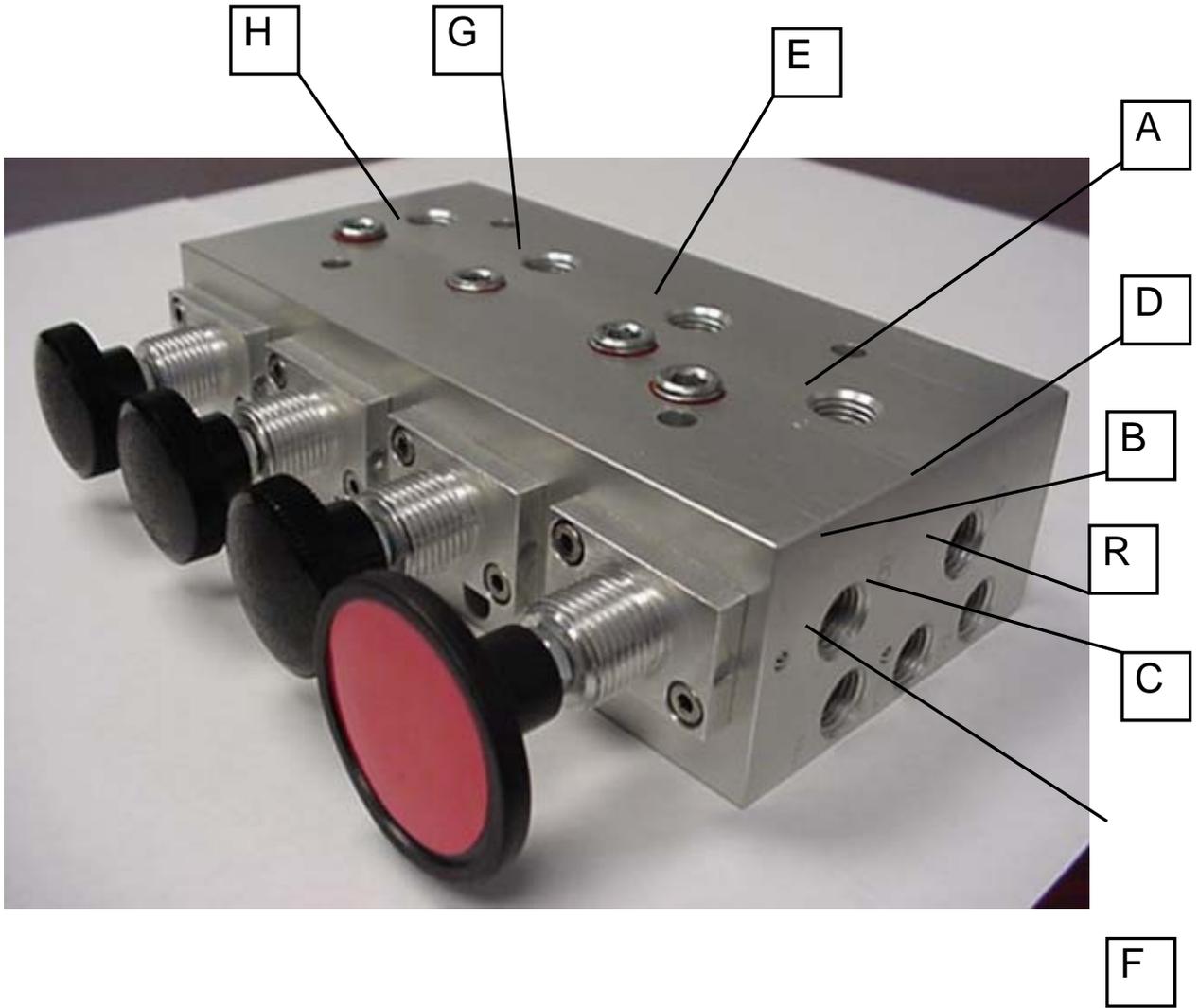
When the second valve on the manifold is actuated this air connection allows air to travel to the emergency (internal) loading valve in the number (2) compartment, opening this loading valve.

H

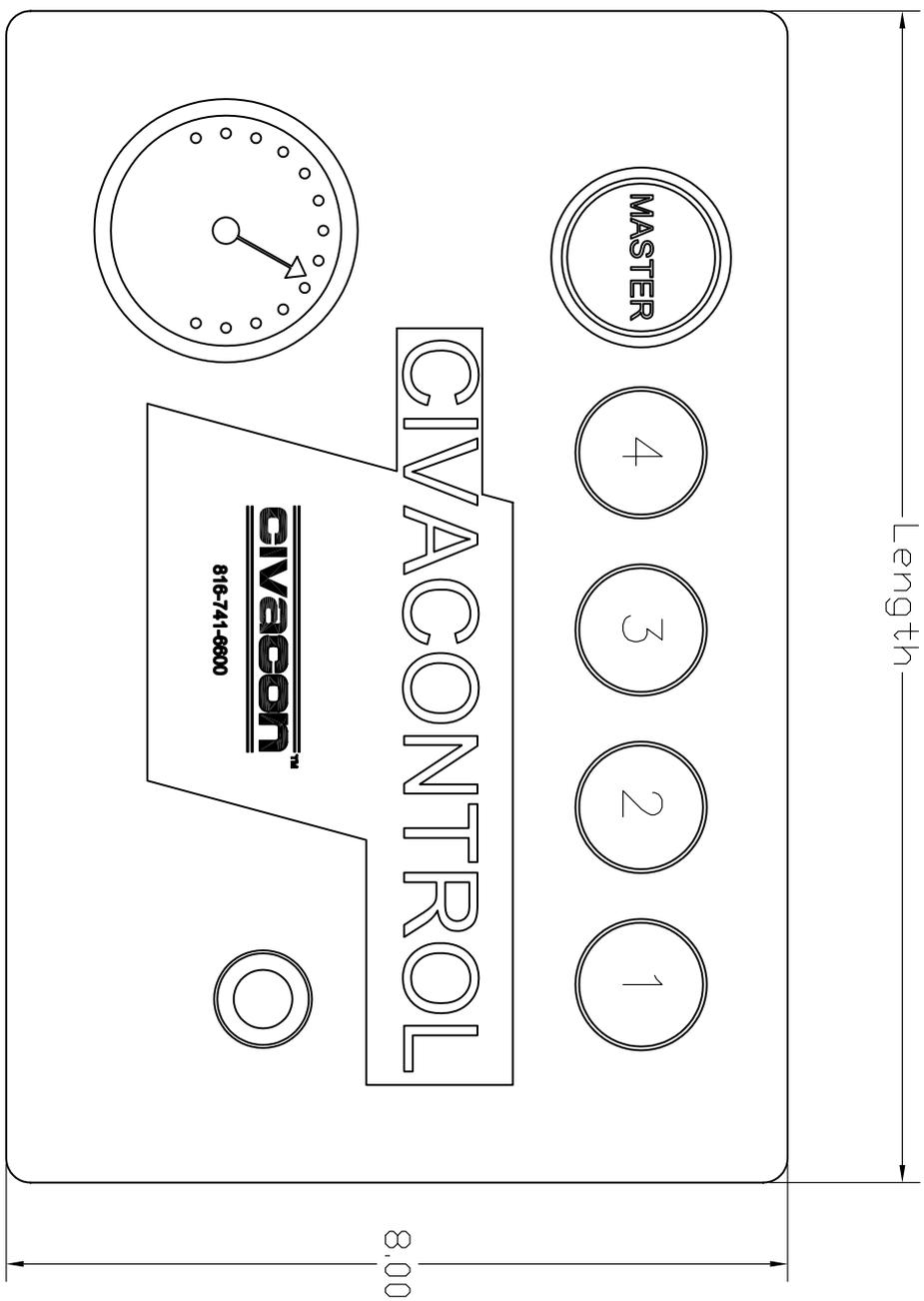
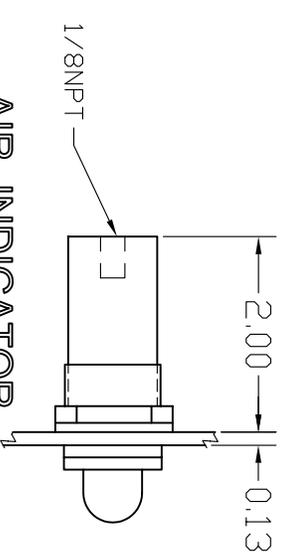
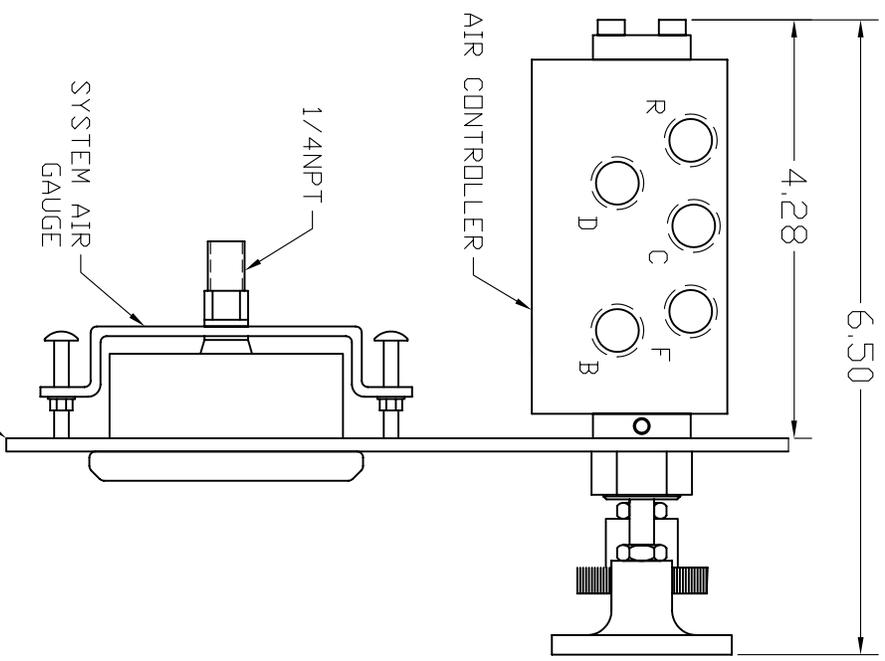
When the third valve on the manifold is actuated this air connection allows air to travel to the emergency (internal) loading valve in the number (3) compartment, opening this loading valve.

R

This is an exhaust port.



REVISION		REV.	DESCRIPTION	BY	DATE
A	ENGINEERING RELEASE			MH	9/2/05



	Length	Weight
CCP-4	12.0"	10.6 lbs.
CCP-5	12.0"	12.1 lbs.
CCP-6	13.8"	13.6 lbs.

CCP-4 SHOWN
ALL DIMENSIONS ARE REFERENCE ONLY

MATERIAL:		TOLERANCES UNLESS OTHERWISE SPECIFIED	
SURFACE FINISH: 63 μIN.		FRACTIONAL: ± 1/16	
DECIMAL: .00 ± .030		ANGLES: ± 1°	
ITEM	DWG NO.	REQD.	ANGLE:
NEXT ASSEMBLY			
DRAWN BY: M. HOLT		DATE: 9/2/05	SCALE: NONE
TITLE: CIVA CONTROL PANEL ASS'Y		P/N:	CCP-X
KNAPP CO CORPORATION 4304 MATTOX ROAD KANSAS CITY, MISSOURI 64100 PHONE: (816) 741-6800 FAX: (816) 741-1061			